

REMARKS

Claims 1-68 are pending in this application. Claims 8, 12, 24-26 and 35-68 have been withdrawn from consideration. Claims 3, 9 and 22 have been rejected under 35 U.S.C. § 112. Claims 1-6, 13-16, 21, 22, 33 and 34 have been rejected under 35 U.S.C. § 102. Claims 7, 9-11, 17-20 and 23 have been rejected under 35 U.S.C. § 103. Claims 27-32 have been found allowable. Claims 1, 3, 9, 22, 33 and 34 have been amended. Claims 69-77 have been added. No new matter has been added. Reexamination and reconsideration are respectfully requested.

Rejection Under 35 U.S.C. § 112

The Examiner has rejected claims 3, 9 and 22 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner has noted that there is insufficient antecedent basis for "the cup." Applicant has amended claims 3, 9 and 22 so that all claim elements have sufficient antecedent basis.

Rejection Under 35 U.S.C. § 102

The Examiner has rejected claims 1, 6 and 13 under 35 U.S.C. § 102(b) as being anticipated by Buchholtz et al., U.S. Patent No. 4,808,089. In addition, the Examiner has rejected claims 1-6, 13-16, 21, 22, 33 and 34 under 35 U.S.C. § 102(b) as being anticipated by Slettenmark, U.S. Patent No. 5,318,521. These rejections are respectfully traversed. However, in an effort to further clarify and distinguish embodiments of Applicant's invention over the cited references and pass the claims to allowance at an earliest possible date, Applicant has amended claims 1, 33 and 34.

As amended, claim 1 recites a drive mechanism for delivery of infusion medium comprising, *inter alia*, a piston channel and a piston, wherein a clearance between the piston and the piston channel causes a volume of the infusion medium for refilling the piston channel to be greater than a volume of the infusion medium backflowing through the piston channel. Similar

amendments have been made to claims 33 and 34. These features are not found in the Buchholtz or Slettenmark references.

Buchholtz is directed toward a reciprocating pump for a medication administering device. Buchholtz discloses an electromagnetic drive system composed essentially of an electromagnetic coil for reciprocation of the pump. (Buchholtz, col. 5, lines 21-23.) The thrust of Buchholtz is to minimize the "dead space" at its input by including a mobile valve in the admission chamber. (Buchholtz, column 2, lines 11-17.) While Buchholtz discloses a jacket part 122 as being a guide surface for a piston 17, there is no discussion or suggestion in Buchholtz of the nature of the clearance between the piston and any other structure that could be equivalent to Applicant's piston channel, if any. In particular, Buchholtz does not disclose or suggest a piston channel and a piston, wherein a clearance between the piston and the piston channel causes a volume of the infusion medium for refilling the piston channel to be greater than a volume of the infusion medium backflowing through the piston channel, as recited in amended claims 1, 33 and 34.

Similarly, there is no discussion or suggestion in Slettenmark of the nature of the clearance between the piston and any other structure that could be equivalent to the piston channel, if any. Slettenmark is directed toward a dosing device for the controlled delivery of a liquid. Slettenmark discloses a piston 4 contained in a cylinder housing 5 (See Slettenmark, column 4, lines 54-55; fig. 1), but gives no description of the relationship between the piston 4 and the cylinder housing 5. In particular, Slettenmark does not disclose or suggest a piston channel and a piston, wherein a clearance between the piston and the piston channel causes a volume of the infusion medium for refilling the piston channel to be greater than a volume of the infusion medium backflowing through the piston channel, as recited in amended claims 1, 33 and 34.

Moreover, there are other features distinguishing embodiments of the present invention from the Buchholtz and Slettenmark references. For example, new claims 75-77 recite, *inter alia*, that both the armature and the outlet chamber are disposed adjacent the coil, but on opposite sides of the piston. This is exactly opposite the current configuration in the Buchholtz reference.

Also, for example, new claims 75-77 recite, *inter alia*, an outlet chamber disposed adjacent the coil. As can be seen in Fig. 1 of Slettenmark, the location of the outlet chamber in Slettenmark is not adjacent to the coil.

Accordingly, there are features in amended claims 1, 33 and 34 that are not disclosed or suggested in Buchholtz or Slettenmark. Thus, the Buchholtz and Slettenmark references cannot anticipate claims 1, 33 and 34.

Moreover, claims 2-6, 13-16, 21 and 22, and new claims 71-77, which depend either directly or indirectly from claim 1, claim 33 or claim 34, can also not be anticipated by the Buchholtz and Slettenmark references for at least the same reasons as claims 1, 33 and 34.

Also, Applicant has added new Claim 70. Claim 70 is based on currently pending Claim 28, which the Examiner has found allowable. Claim 70 is also allowable over the Buchholtz and Slettenmark references. Claim 70 recites a drive mechanism for delivery of infusion medium comprising, *inter alia*, a coil cup, the coil cup having an inner pole surface and an outer pole surface, and an armature, wherein the armature has an annular inner pole surface and an annular outer pole surface, each made of a magnetizable material, and wherein the inner pole surface of the armature faces the inner pole surface of the coil cup, and the outer pole surface of the armature faces the outer pole surface of the coil cup. These features are not found in the Buchholtz or Slettenmark references.

In the Buchholtz reference, there is no coil cup nor is there a dedicated housing for the coil cup. Moreover, Buchholtz does not disclose or suggest an armature having an annular inner pole surface and annular outer pole surface. Slettenmark discloses no more than a stator seated on a cylinder housing and having a stator winding and an encapsulated armature rigidly connected to a piston. The armature has an annular surface facing in a direction toward the outlet channel. In addition, the armature in Slettenmark has a *single* surface. There is no additional disclosure or suggestion in Slettenmark of the location and the orientation of any of the windings

in the Slettenmark device, and, in particular, of an armature having an annular inner pole surface and an annular outer pole surface as recited in claim 70.

Rejection Under 35 U.S.C. § 103

The Examiner has rejected claims 7, 9-11 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Slettenmark in view of Kenyon, U.S. Patent No. 4,684,368. This rejection is respectfully traversed. However, as explained above, claim 1 has been amended to further clarify and distinguish embodiments of Applicant's invention over the cited art. Because claims 7, 9-11 and 23 depend either directly or indirectly from claim 1, these claims are also clarified and distinguished over the cited art.

As explained above, claim 1, as amended, recites features that are not disclosed or suggested in Slettenmark. In addition, claim 1, as amended, recites features not disclosed or suggested in Kenyon, individually or in combination with Slettenmark.

Kenyon is directed toward a pump having an armature that is reciprocated between an electromagnetic core and a housing. As can be seen in Fig. 1 of Kenyon, there is no piston channel in the Kenyon device. Thus, there is no disclosure or suggestion in Kenyon of a clearance between the piston and the piston channel causing a volume of the infusion medium for refilling the piston channel to be greater than a volume of the infusion medium backflowing through the piston channel as recited in claim 1.

Accordingly, there is no disclosure or suggestion in Slettenmark or Kenyon, individually or in combination, of a drive mechanism for delivery of infusion medium comprising, *inter alia*, a piston channel and a piston, wherein a clearance between the piston and the piston channel causes a volume of the infusion medium for refilling the piston channel to be greater than a volume of the infusion medium backflowing through the piston channel. Thus, a *prima facie* case of obviousness has not been established with the Slettenmark and Kenyon references against claim 1. Because claims 7, 9-11 and 23 depend either directly or indirectly from claim 1, a *prima facie* case of obviousness has not been established against these claims as well.

The Examiner has also rejected claims 17-20 under 35 U.S.C. § 103(a) as being unpatentable over Slettenmark in view of Wijay et al., U.S. Patent No. 5,066,282. This rejection is respectfully traversed. However, as explained above, claim 1 has been amended to further clarify and distinguish embodiments of Applicant's invention over the cited art. Because claims 17-20 are dependent either directly or indirectly from claim 1, these claims are also further clarified and distinguished over the cited art.

Wijay is directed toward a disposable, positive-displacement piston pump. The pump in Wijay is driven by a drive motor. (See Fig. 1.) However, in Wijay, as with Kenyon, there is no piston channel through which infusion medium flows. Accordingly, there is no disclosure or suggestion in Wijay of a drive mechanism for delivery of infusion medium comprising, *inter alia*, a piston channel and a piston, wherein a clearance between the piston and the piston channel causes a volume of the infusion medium for refilling the piston channel to be greater than a volume of the infusion medium backflowing through the piston channel as recited in amended claim 1.

Thus, there are features recited in amended claim 1 that are not disclosed or suggested, individually or in combination, in Slettenmark or Wijay. Accordingly, a *prima facie* case of obviousness cannot be made against claim 1 using these references. Because claims 17-20 depend either directly or indirectly from claim 1, a *prima facie* case of obviousness cannot be made against these claims using the cited references as well.

Claim 70 is also allowable over the combination of the Slettenmark and Kenyon references and the combination of the Slettenmark and Wijay references, individually or in combination. As state above, Claim 70 recites features not found in the Slettenmark reference. In addition, Claim 70 recites features not found in Kenyon or Wijay.

Kenyon, like Slettenmark, does not disclose or suggest a coil cup and includes an armature having only a single surface. Wijay does not disclose or suggest a coil cup and gives no description of an armature. Accordingly, Claim 70 is also allowable over these references.

Allowable Subject Matter

Applicant gratefully acknowledges the Examiner's recognition of allowable subject matter in claims 27-32. New claim 69 has been added and is based on claim 27.

New Claims

In addition to claims 69 and 70, Applicant has added new claims 71-77. New claims 71-77 are based on the specification as originally filed. No new matter has been added. New claims 71-77, which depend either directly or indirectly from claims 1, 33 or 34, are believed to be allowable over the art cited by the Examiner for at least the reasons indicated above in connection with claims 1, 33 and 34.

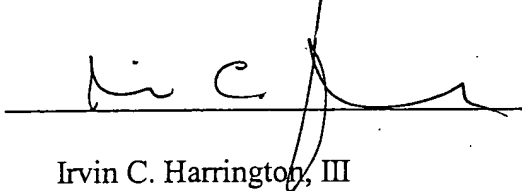
The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 05-0872. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 05-0872. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 05-0872.

Respectfully submitted,

Date January 26, 2004

FOLEY & LARDNER
Customer Number: 23392
Telephone: (310) 975-7963
Facsimile: (310) 557-8475

By


Irvin C. Harrington, III
Attorney for Applicant
Registration No. 44,740